

ABSTRACT OF THE DISCLOSURE

Methods and apparatuses for shaping an illumination pattern for off-axis lithography are disclosed. A disclosed apparatus includes a first and second reflecting objective. The first reflecting objective includes a first reflective surface that reflects input light having an on-axis illumination pattern through a first focal point. The second reflecting objective includes a second reflective surface that receives the reflected light through the first focal point and through a second focal point aligned with the first focal point, and reflects the reflected light through in an off-axis illumination pattern. A disclosed method includes receiving collimated light with a conventional illumination pattern centered on an optical axis, symmetrically reflecting the collimated light in multiple directions away from the optical axis and reflecting the reflected light to create output light having an off-axis illumination pattern symmetrical about the optical axis.